

IN THE CLAIMS:

Please cancel claims 22, 24, 40, and 41 without prejudice to or disclaimer of the subject matter recited therein, and amend the remaining claims as follows:

1. (withdrawn) A magnet structure, comprising:

a frame supporting first and second opposing permanent magnet assemblies;

wherein the frame includes

a base,

first and second extensions connected to the base and to the respective first and second opposing permanent magnet assemblies, and

first and second support structures supporting the respective first and second opposing permanent magnet assemblies with respect to the base; and

wherein the first and second opposing permanent magnet assemblies each include

an enclosure having an open end,

a pole, disposed on the enclosure, having a pole face, and arranged such that the pole face opposes the pole face of the other permanent magnet assembly,

a magnetic mass disposed within the enclosure, and

a cover over the open end of the enclosure.

2. (withdrawn) The magnet structure of claim 1, wherein the magnetic mass is a plurality of discrete magnetic elements made from a first magnetic material.

3. (withdrawn) The magnet structure of claim 5, wherein the enclosure is box-shaped.

4. (withdrawn) The magnet structure of claim 2, wherein the discrete magnetic elements are bricks made from a first magnetic material.

5. (withdrawn) The magnet structure of claim 4, wherein the bricks are stacked so as to substantially conform to the shape of the enclosure and filling the enclosure.

6. (withdrawn) The magnet structure of claim 5, further comprising a brace connected between the cover and a first side of the enclosure on which the pole is disposed.

7. (withdrawn) The magnet structure of claim 5, further comprising a brace connected between a first side of the enclosure, and a second side of the enclosure on which the pole is disposed.

8. (withdrawn) The magnet structure of claim 4, wherein the bricks include main bricks oriented so as to direct a main magnetic field in a first direction, and bucking bricks oriented to direct a blocking magnetic field in a second direction.

9. (withdrawn) The magnet structure of claim 8, wherein the main bricks are disposed behind the respective pole face and direct the main magnetic field generally

toward the respective pole face, and the bucking bricks are disposed to one side of an outside periphery of the respective pole face and direct the blocking magnetic field toward a center line of the respective pole face.

10. (withdrawn) The magnet structure of claim 8, wherein the main bricks are disposed behind the respective pole face and direct the main magnetic field generally toward the respective pole face, and the bucking bricks are disposed on two opposite sides of an outside periphery of the respective pole face and direct the blocking magnetic field toward a center line of the respective pole face.

11. (withdrawn) The magnet structure of claim 8, wherein
the main bricks are disposed behind the respective pole face and direct the main magnetic field generally toward the respective pole face, and
the bucking bricks include first bucking bricks and second bucking bricks,
wherein

the first bucking bricks are disposed at a first side of an outside periphery of the respective pole face and direct the blocking magnetic field toward a first center line of the respective pole face, and

the second bucking bricks are disposed at a second side of the outside periphery of the respective pole face, adjacent the first side of the outside periphery of the respective pole face, and direct the blocking magnetic field toward a second center line of the respective pole face.

12. (withdrawn) The magnet structure of claim 8, wherein
the main bricks are disposed behind the respective pole face and direct the main
magnetic field generally toward the respective pole face, and
the bucking bricks include first bucking bricks and second bucking bricks,
wherein

the first bucking bricks are disposed at first and second opposite sides of an
outside periphery of the respective pole face and direct the blocking magnetic field
toward a first center line of the respective pole face, and

the second bucking bricks are disposed at third and fourth opposite sides of
the outside periphery of the respective pole face, adjacent the first and second
opposite sides of the outside periphery of the respective pole face, and direct the
blocking magnetic field toward a second center line of the respective pole face.

13. (withdrawn) The magnet structure of claim 4, wherein an orientation of each
said brick determines a direction of the magnetic field produced by said brick.

14. (withdrawn) The magnet structure of claim 13, wherein the orientation of
each said brick is selected to direct a cumulative magnetic field produced by the plurality
of bricks.

15. (withdrawn) The magnet structure of claim 14, wherein the orientation of
each said brick is selected to direct a cumulative magnetic field produced by the plurality
of bricks toward the respective pole face.

16. (withdrawn) The magnet structure of claim 14, wherein the orientation of a first quantity of the plurality of bricks is selected to direct a cumulative magnetic field produced by the first quantity of bricks generally toward the respective pole face, and the orientation of a second quantity of the plurality of bricks is selected to focus the cumulative magnetic field produced by the first quantity of bricks toward a particular area of the respective pole face.

17. (withdrawn) The magnet structure of claim 1, wherein the magnetic mass is selected from a group of materials consisting of rare earth metals.

18. (withdrawn) The magnet structure of claim 4, wherein the magnetic material of the bricks is selected from a group of materials consisting of rare earth metals.

19. (withdrawn) The magnet structure of claim 4, wherein dimensions of each said brick are approximately 2 inches by 2 inches by 1 inch.

20. (withdrawn) The magnet structure of claim 1, wherein the frame further includes first and second slabs of magnetic material disposed on sides of the respective enclosures of the opposing permanent magnet assemblies opposite the sides of the respective enclosures on which the poles are disposed.

21. (withdrawn) The magnet structure of claim 1, wherein the first and second frame extensions are made from a magnetic material.

22. (canceled)

23. (currently amended) The magnet structure of claim 28 ~~22~~, wherein magnetic fields produced by the first and second permanent magnet masses are directed toward the respective pole faces.

24. (canceled)

25. (currently amended) The magnet structure of claim 28 ~~24~~, wherein the first and second pluralities of bricks are made of magnetic material selected from group consisting of rare earth metals.

26. (currently amended) The magnet structure of claim 28 ~~22~~, wherein the first and second permanent magnet masses ~~pluralities of bricks~~ have geometries that allow a magnetic field direction for each said magnet mass ~~brick~~ to be selected by physical arrangement of the magnet mass ~~brick~~.

27. (currently amended) The magnet structure of claim 28 ~~22~~, wherein the first and second permanent magnet masses ~~pluralities of bricks~~ are arranged so that a

cumulative effect of individual field directions of the magnet masses bricks is a magnetic field directed toward the respective pole face.

28. (currently amended) ~~The~~ A magnet structure of claim 24, comprising:
- a first permanent magnet mass;
 - a first pole, having a first pole face and disposed on the first permanent magnet mass;
 - a second permanent magnet mass;
 - a second pole, having a second pole face and disposed on the second permanent magnet mass; and
 - a frame connecting the first permanent magnet mass to the second permanent magnet mass, such that the first pole face is substantially opposite and facing the second pole face to define a magnetic field volume in a gap located between the first pole face and the second pole face;
 - wherein the first and second permanent magnetic masses include discrete magnetic elements;
 - wherein the discrete magnetic elements are respective first and second pluralities of bricks made of magnetic material;
 - wherein each said first and second pluralities of bricks includes main bricks oriented so as to direct a main magnetic field in a first direction, and bucking bricks oriented to direct a blocking magnetic field in a second direction.

29. (original) The magnet structure of claim 28, wherein the main bricks are disposed behind the respective pole face and direct the main magnetic field generally toward the respective pole face, and the bucking bricks are disposed to one side of an outside periphery of the respective pole face and direct the blocking magnetic field toward a center line of the respective pole face.

30. (original) The magnet structure of claim 28, wherein the main bricks are disposed behind the respective pole face and direct the main magnetic field generally toward the respective pole face, and the bucking bricks are disposed on two opposite sides of an outside periphery of the respective pole face and direct the blocking magnetic field toward a center line of the respective pole face.

31. (original) The magnet structure of claim 28, wherein
the main bricks are disposed behind the respective pole face and direct the main magnetic field generally toward the respective pole face, and

the bucking bricks include first bucking bricks and second bucking bricks,
wherein

the first bucking bricks are disposed at a first side of an outside periphery of the respective pole face and direct the blocking magnetic field toward a first center line of the respective pole face, and

the second bucking bricks are disposed at a second side of the outside periphery of the respective pole face, adjacent the first side of the outside periphery of

the respective pole face, and direct the blocking magnetic field toward a second center line of the respective pole face.

32. (original) The magnet structure of claim 28, wherein
the main bricks are disposed behind the respective pole face and direct the main magnetic field generally toward the respective pole face, and
the bucking bricks include first bucking bricks and second bucking bricks,
wherein

the first bucking bricks are disposed at first and second opposite sides of an outside periphery of the respective pole face and direct the blocking magnetic field toward a first center line of the respective pole face, and

the second bucking bricks are disposed at third and fourth opposite sides of the outside periphery of the respective pole face, adjacent the first and second opposite sides of the outside periphery of the respective pole face, and direct the blocking magnetic field toward a second center line of the respective pole face.

33. (currently amended) ~~The A magnet structure of claim 24, comprising:~~
a first permanent magnet mass;
a first pole, having a first pole face and disposed on the first permanent magnet
mass;
a second permanent magnet mass;
a second pole, having a second pole face and disposed on the second permanent
magnet mass; and

a frame connecting the first permanent magnet mass to the second permanent magnet mass, such that the first pole face is substantially opposite and facing the second pole face to define a magnetic field volume in a gap located between the first pole face and the second pole face;

wherein the first and second permanent magnetic masses include discrete magnetic elements;

wherein the discrete magnetic elements are respective first and second pluralities of bricks made of magnetic material;

further comprising first and second enclosures in which the first and second pluralities of bricks are respectively disposed, wherein the first and second enclosures are connected to the frame and to the respective first and second poles.

34. (original) The magnet structure of claim 33, wherein each said enclosure includes an open end for inserting and removing quantities of the respective pluralities of bricks, and a cover disposed over the open end.

35. (original) The magnet structure of claim 34, wherein each said enclosure further includes a brace connected between the cover and a first side of the enclosure on which the pole is disposed.

36. (original) The magnet structure of claim 34, wherein each said enclosure further includes a brace connected between a first side of the enclosure, and a second side of the enclosure on which the pole is disposed.

37. (currently amended) The magnet structure of claim ~~22~~ 28, wherein each said permanent magnetic mass includes a main magnetic mass providing a main magnetic field in a first direction, and a focusing magnetic mass providing a main magnetic field in a second direction.

38. (original) The magnet structure of claim 37, wherein the first direction is normal to a plane generally defined by a shape of the pole face, and where the second direction is parallel to the plane generally defined by a shape of the pole face.

39. (currently amended) The magnet structure of claim ~~22~~ 28, wherein the magnetic mass includes magnetic material selected from group consisting of rare earth metals.

40. (canceled)

41. (canceled)

42. (currently amended) The magnet structure of claim ~~40~~ 44, wherein a selectable orientation of each said discrete magnetic element determines a direction of the magnetic field produced by said discrete magnetic element.

43. (currently amended) The magnet structure of claim ~~41~~ 28, wherein the orientation of each said discrete magnetic element is selected to direct a cumulative magnetic field produced by the discrete magnetic elements toward the respective pole face.

44. (currently amended) ~~The~~ A magnet structure ~~of claim 41~~, comprising:
a first permanent magnet mass;
a first pole, having a first pole face and disposed on the first permanent magnet
mass;
a second permanent magnet mass;
a second pole, having a second pole face and disposed on the second permanent
magnet mass; and
a frame connecting the first permanent magnet mass to the second permanent
magnet mass, such that the first pole face is substantially opposite and facing the second
pole face to define a magnetic field volume in a gap located between the first pole face
and the second pole face;
wherein the first and second permanent magnetic masses include discrete
magnetic elements;
wherein the discrete magnetic elements include magnetic material selected from
group consisting of rare earth metals;

wherein the orientation of a first quantity of the discrete magnetic elements is selected to direct a cumulative magnetic field produced by the first quantity of discrete magnetic elements generally toward the respective pole face, and the orientation of a

second quantity of the discrete magnetic elements is selected to focus the cumulative magnetic field produced by the first quantity of discrete magnetic elements toward a particular area of the respective pole face.

45. (original) The magnet structure of claim 44, wherein the particular area of the pole face includes the center of the pole face.

46. (original) The magnet structure of claim 44, wherein the first quantity of the discrete magnetic elements is disposed behind the respective pole face, and the second quantity of the discrete magnetic elements is disposed outside of an outer periphery of the respective pole face.

47. (previously presented) The magnet structure of claim 89, wherein the frame further includes first and second slabs of magnetic material disposed on sides of the respective first and second permanent magnet masses opposite the sides of the respective permanent magnet masses on which the respective pole faces are disposed.

48. (withdrawn) A magnet structure, comprising:

a frame, including first and second opposing frame ends and a plurality of spacers separating the first and second frame ends;

a first permanent magnet assembly, attached to the first frame end, including a first magnet enclosure, a first permanent magnet insert, and a first pole, having a first pole face and disposed on an end of the first magnet enclosure; and

a second permanent magnet assembly, attached to the second frame end, including a second magnet enclosure, a second permanent magnet insert, and a second pole, having a second pole face and disposed on an end of the second magnet enclosure.

49. (withdrawn) The magnet structure of claim 48, wherein each of the first and second magnet enclosures includes a retainer, and a support attaching the retainer to the respective frame end, such that the respective permanent magnet insert is held between a first side of the retainer and the respective frame end, and the respective pole is connected to a second side of the retainer.

50. (withdrawn) The magnet structure of claim 48, wherein the first and second frame ends are made substantially of iron.

51. (withdrawn) The magnet structure of claim 49, wherein each said retainer is made substantially of iron.

52. (withdrawn) The magnet structure of claim 48, wherein each of the first and second frame ends is shaped substantially like a cross.

53. (withdrawn) The magnet structure of claim 52, wherein the cross shape is supported by at least one gusset.

54. (withdrawn) The magnet structure of claim 52, wherein the spacers connect corresponding ends of the cross shapes of the first and second frame ends.

55. (withdrawn) The magnet structure of claim 48,
wherein the first and second magnet enclosures each include an open end, a closed end, and a sidewall, defining an inside space in which the respective permanent magnet insert is disposed, and
wherein the first and second magnet enclosures are each attached to the respective frame end such that the open end is in direct communication with the respective frame end, and the respective pole is attached to the closed end.

56. (withdrawn) The magnet structure of claim 55, wherein each said inside space has a plan view that is shaped substantially like a rectangle.

57. (withdrawn) The magnet structure of claim 56, wherein the first and second frame ends are each shaped substantially like a cross, and the sides of each of the inside spaces are substantially parallel with arms of the respective cross.

58. (withdrawn) The magnet structure of claim 56, wherein the first and second frame ends are each shaped substantially like a cross, and the corners of each of the inside spaces are disposed on arms of the respective cross.

59. (withdrawn) The magnet structure of claim 55, wherein the first and second magnet enclosures are made substantially of iron.

60. (withdrawn) The magnet structure of claim 48, wherein the first and second permanent magnet inserts each include discrete magnetic elements.

61. (withdrawn) The magnet structure of claim 60, wherein the discrete magnetic elements are made of magnetic material selected from group consisting of rare earth metals.

62. (withdrawn) The magnet structure of claim 60, wherein the discrete magnetic elements have geometries that allow a magnetic field direction for each said discrete magnetic element to be selected based on a physical orientation of the discrete magnetic elements.

63. (withdrawn) The magnet structure of claim 62, wherein the discrete magnetic elements are arranged so that a cumulative effect of individual field directions of the discrete magnetic elements is a magnetic field directed toward the respective pole face.

64. (withdrawn) The magnet structure of claim 62, wherein the discrete magnetic elements include a first group of discrete magnetic elements arranged to have a magnetic field directed generally toward the respective pole face, and a second group of discrete

magnetic elements focusing the magnetic field toward a particular area on the respective pole face.

65. (withdrawn) The magnet structure of claim 64, wherein the particular area on the respective pole face is the center of the pole face.

66. (withdrawn) The magnet structure of claim 64,
wherein the second group of discrete magnetic elements is disposed between the first group of discrete magnetic elements and the respective pole face and outside an outer periphery of the respective pole face, and

wherein the second group of discrete magnetic elements produces a magnetic field that has a direction substantially parallel to the pole face.

67. (withdrawn) The magnet structure of claim 48, wherein the first and second permanent magnet inserts each include bricks made of magnetic material.

68. (withdrawn) The magnet structure of claim 67, wherein the bricks are made of magnetic material selected from group consisting of rare earth metals.

69. (withdrawn) The magnet structure of claim 67, wherein the bricks have geometries that allow a magnetic field direction for each said brick to be selected by physical arrangement of the brick.

70. (withdrawn) The magnet structure of claim 69, wherein the bricks are arranged so that a cumulative effect of individual field directions of the bricks is a magnetic field directed toward the respective pole face.

71. (withdrawn) The magnet structure of claim 69, wherein the bricks include a first group of bricks arranged to have a magnetic field directed generally toward the respective pole face, and a second group of bricks focusing the magnetic field toward a particular area on the respective pole face.

72. (withdrawn) The magnet structure of claim 71, wherein the particular area on the respective pole face is an area including the center of the pole face.

73. (withdrawn) The magnet structure of claim 71,
wherein the second group of bricks is disposed between the first group of bricks and the respective pole face and outside an outer periphery of the respective pole face,
and

wherein the second group of bricks produces a magnetic field that has a direction substantially parallel to the pole face.

74. (withdrawn) The magnet structure of claim 21, wherein the first and second frame extensions are made from a ferromagnetic material.

75. (withdrawn) The magnet structure of claim 21, wherein the first and second frame extensions are flux collector plates.

76. (withdrawn) The magnet structure of claim 21, wherein the first and second frame extensions are disposed in direct contact with the magnetic mass.

77. (withdrawn) The magnet structure of claim 20, wherein the first and second frame extensions are made from a magnetic material, and the first and second slabs of magnetic material provide contact between the first and second frame extensions and the respective magnetic masses of the first and second opposing permanent magnet assemblies.

78. (withdrawn) The magnet structure of claim 21, wherein the base is made from a magnetic material.

79. (withdrawn) The magnet structure of claim 78, wherein the base is made from a ferromagnetic material.

80. (withdrawn) The magnet structure of claim 78, wherein the base is a flux return.

81. (withdrawn) The magnet structure of claim 1, wherein the first and second support structures of the frame are made from a non-magnetic material.

82. (withdrawn) The magnet structure of claim 81, wherein the first and second support structures of the frame are made from aluminum.

83. (withdrawn) The magnet structure of claim 1, wherein the base of the frame includes a bore therethrough for receiving a limb of a subject of a magnetic field produced by the magnet structure.

84. (withdrawn) The magnet structure of claim 8, wherein the main magnetic field and the blocking magnetic field together define a magnetic field volume.

85. (withdrawn) The magnet structure of claim 84, wherein the defined magnetic field volume is an imaging volume that accepts patient anatomy for imaging.

86. (previously presented) The magnet structure of claim 33, wherein the frame includes first and second end plates, respectively attached to the first and second enclosures, and a connecting element attached to the first and second end plates.

87. (previously presented) The magnet structure of claim 86, further including first and second support structures, attached to the respective first and second enclosures and to the connecting element.

88. (previously presented) The magnet structure of claim 87, wherein the connecting element is a first connecting element, and further comprising a second connecting element, attached to the first connecting element and to the first and second end plates.

89. (previously presented) The magnet structure of claim 88, wherein the first and second end plates and the first and second connecting elements are made of a magnetic material.

90. (previously presented) The magnet structure of claim 89, wherein the first and second end plates and the first and second connecting elements are made of a ferromagnetic material.

91. (previously presented) The magnet structure of claim 89, wherein the end plates are flux collector plates, and the connecting elements are flux returns.

92. (previously presented) The magnet structure of claim 89, wherein the first and second support structures are made of a non-magnetic material.

93. (previously presented) The magnet structure of claim 92, wherein the first and second support structures are made of aluminum.

94. (previously presented) The magnet structure of claim 89, wherein the first and second end plates are disposed in direct contact with the respective first and second pluralities of bricks.

95. (previously presented) The magnet structure of claim 47, wherein the first and second end plates are disposed in contact with the respective first and second pluralities of bricks through the first and second slabs of magnetic material.

96. (currently amended) ~~The~~ A magnet structure of claim 22, comprising:
a first permanent magnet mass;
a first pole, having a first pole face and disposed on the first permanent magnet
mass;
a second permanent magnet mass;
a second pole, having a second pole face and disposed on the second permanent
magnet mass; and
a frame connecting the first permanent magnet mass to the second permanent
magnet mass, such that the first pole face is substantially opposite and facing the second
pole face to define a magnetic field volume in a gap located between the first pole face
and the second pole face;

further comprising first and second interface collectors made from a magnetic material, disposed between the respective first and second permanent magnet masses and the first and second poles.

97. (previously presented) The magnet structure of claim 96, wherein the first and second interface collectors each include a first face disposed in contact with the respective permanent magnet mass, and a second face disposed in contact with the respective pole.

98. (previously presented) The magnet structure of claim 97, wherein the second faces of the first and second interface collectors have a first shape that matches a shape of a contact surface of the respective poles.

99. (previously presented) The magnet structure of claim 98, wherein the first faces of the first and second interface collectors have a second shape that matches a shape of a contact surface of the respective permanent magnet mass.

100. (previously presented) The magnet structure of claim 99, wherein a cross-sectional shape of the first and second interface collectors changes in transition from the first shape to the second shape along a thickness of the respective interface collector.

101. (previously presented) The magnet structure of claim 100, wherein the transition is smooth.

102. (previously presented) The magnet structure of claim 96, wherein the first and second interface collectors each provide a flux transmission interface between the respective permanent magnet mass and the respective pole.

103. (previously presented) The magnet structure of claim 99, further comprising first and second enclosures in which the first and second magnetic masses are respectively disposed,

wherein the first and second enclosures are attached to the frame, and

wherein the first and second interface collectors are attached to the respective first and second enclosures.

104. (previously presented) The magnet structure of claim 103, wherein each said enclosure includes an open end for inserting and removing the respective permanent magnet mass, and a cover disposed over the open end.

105. (previously presented) The magnet structure of claim 104, wherein the cover is made of a non-magnetic material.

106. (previously presented) The magnet structure of claim 105, wherein the cover is made of aluminum.

107. (previously presented) The magnet structure of claim 104, wherein the first faces of the first and second interface collectors have a surface area that is smaller than a surface area of a contact surface of the respective permanent magnet mass.

108. (previously presented) The magnet structure of claim 107, wherein each said enclosure further includes a bracket attached to the cover and to the respective interface collector.

109. (previously presented) The magnet structure of claim 108, wherein the bracket is made of a non-magnetic material.

110. (previously presented) The magnet structure of claim 109, wherein the bracket is made of aluminum.

111. (previously presented) The magnet structure of claim 107, wherein each said enclosure further includes a bracket attached to a sidewall of the enclosure and to the respective interface collector.

112. (previously presented) The magnet structure of claim 111, wherein the bracket is made of a non-magnetic material.

113. (previously presented) The magnet structure of claim 112, wherein the bracket is made of aluminum.

114. (previously presented) The magnet structure of claim 28, wherein the main magnetic field and the blocking magnetic field together define a magnetic field volume.

115. (currently amended) The magnet structure of claim 24 28, wherein dimensions of each said brick are approximately 2 inches by 2 inches by 1 inch.

116. (withdrawn) The magnet structure of claim 49, wherein each said support is made of a non-magnetic material.

117. (withdrawn) The magnet structure of claim 116, wherein each said support is made of aluminum.

118. (withdrawn) The magnet structure of claim 51, wherein each said retainer is a flux transmission interface between the respective permanent magnet insert and the respective pole.

119. (withdrawn) The magnet structure of claim 51, wherein each said retainer includes a first face disposed in contact with the respective permanent magnet insert, and a second face disposed in contact with the respective pole.

120. (withdrawn) The magnet structure of claim 119, wherein the second face of each said retainer has a first shape that matches a shape of a contact surface of the respective pole.

121. (withdrawn) The magnet structure of claim 120, wherein the first face of each said retainer has a second shape that matches a shape of a contact surface of the respective permanent magnet insert.

122. (withdrawn) The magnet structure of claim 121, wherein a cross-sectional shape of each said retainer changes in transition from the first shape to the second shape along a thickness of the respective retainer.

123. (withdrawn) The magnet structure of claim 122, wherein the transition is smooth.

124. (withdrawn) The magnet structure of claim 67, wherein dimensions of each said brick are approximately 2 inches by 2 inches by 1 inch.

125. (withdrawn) The magnet structure of claim 67, wherein each said permanent magnet insert is an array of said bricks having dimensions of 46 inches by 46 inches by 6 inches.

126. (withdrawn) The magnet structure of claim 48, wherein a distance between outside edges of the first and second frame ends is about 52 inches.

127. (withdrawn) The magnet structure of claim 48, wherein a distance between the first and second pole faces is between about 22 inches and about 24 inches.

128. (withdrawn) The magnet structure of claim 50, wherein the plurality of spacers are made of a magnetic material.

129. (withdrawn) The magnet structure of claim 128, wherein the spacers are flux returns.

130. (withdrawn) The magnet structure of claim 64, wherein the first and second groups of discrete magnetic elements together define a magnetic field volume.

131. (new) The magnet structure of claim 33, wherein magnetic fields produced by the first and second permanent magnet masses are directed toward the respective pole faces.

132. (new) The magnet structure of claim 33, wherein the first and second permanent magnet masses have geometries that allow a magnetic field direction for each said magnet mass to be selected by physical arrangement of the magnet mass.

133. (new) The magnet structure of claim 33, wherein the first and second permanent magnet masses are arranged so that a cumulative effect of individual field directions of the magnet masses is a magnetic field directed toward the respective pole face.

134. (new) The magnet structure of claim 33, wherein each said permanent magnetic mass includes a main magnetic mass providing a main magnetic field in a first direction, and a focusing magnetic mass providing a main magnetic field in a second direction.

135. (new) The magnet structure of claim 134, wherein the first direction is normal to a plane generally defined by a shape of the pole face, and where the second direction is parallel to the plane generally defined by a shape of the pole face.

136. (new) The magnet structure of claim 33, wherein the magnetic mass includes magnetic material selected from group consisting of rare earth metals.

137. (new) The magnet structure of claim 44, wherein the first and second permanent magnet masses have geometries that allow a magnetic field direction for each said magnet mass to be selected by physical arrangement of the magnet mass.

138. (new) The magnet structure of claim 44, wherein each said permanent magnetic mass includes a main magnetic mass providing a main magnetic field in a first direction, and a focusing magnetic mass providing a main magnetic field in a second direction.

139. (new) The magnet structure of claim 138, wherein the first direction is normal to a plane generally defined by a shape of the pole face, and where the second direction is parallel to the plane generally defined by a shape of the pole face.

140. (new) The magnet structure of claim 96, wherein magnetic fields produced by the first and second permanent magnet masses are directed toward the respective pole faces.

141. (new) The magnet structure of claim 96, wherein the first and second permanent magnet masses have geometries that allow a magnetic field direction for each said magnet mass to be selected by physical arrangement of the magnet mass.

142. (new) The magnet structure of claim 96, wherein the first and second permanent magnet masses are arranged so that a cumulative effect of individual field directions of the magnet masses is a magnetic field directed toward the respective pole face.

143. (new) The magnet structure of claim 96, wherein each said permanent magnetic mass includes a main magnetic mass providing a main magnetic field in a first direction, and a focusing magnetic mass providing a main magnetic field in a second direction.

144. (new) The magnet structure of claim 143, wherein the first direction is normal to a plane generally defined by a shape of the pole face, and where the second direction is parallel to the plane generally defined by a shape of the pole face.

145. (new) The magnet structure of claim 96, wherein the magnetic mass includes magnetic material selected from group consisting of rare earth metals.